AMENDMENTS TO THE CLAIMS:

The following listing of claims replaces all prior listings, and all prior versions, of claims in the application.

LISTING OF CLAIMS:

1. (Currently amended) A curved optical waveguide comprising:

a core; and

a clad,

~~characterized in that:~~

wherein a core shape of the curved optical waveguide is defined by the following equation [I]:

$$y = \sin \pi z \quad \cdots\cdots\cdots\cdots [I]$$

wherein **y** and **z** represent coordinate axes perpendicular to each other on a plane where the optical waveguide is present ~~has no reversal of a curvature on a halfway; and~~

~~curvatures at both ends of the curved optical waveguide gradually approach zero~~.

2. – 5. (Cancelled).

6. (Original) An optical waveguide comprising:

the curved optical waveguide according to claim 1; and

an optical waveguide having a different core shape optically connecting with each other.

7. (Original) An optical waveguide comprising:

the curved optical waveguide according to claim 1; and

an optical waveguide having a different core shape optically connecting with each other in a manner that their geometrical central axes are aligned with each other.

8. – 12. (Cancelled).

13. (Currently amended) An optical waveguide according to claim 6 ~~or claim 7~~, wherein the optical waveguide having the different core shape is a branching section of the optical waveguide.

14. (Original) An optical waveguide according to claim 13, wherein an inlet of said branching section of the optical waveguide is optically connected with one end of said curved optical waveguide.

15. (Original) An optical waveguide comprising:

the curved optical waveguide according to claim 1; and

an optical fiber optically connected with an end of said curved optical waveguide.

16. (Original) An optical waveguide comprising:

the curved optical waveguide according to claim 1; and

a guide groove structure for fixing an optical fiber to an end of said curved optical waveguide disposing adjacent with each other.

17. (Original) An optical waveguide according to claim 13, wherein an inlet of said branching section of the optical waveguide is optically connected with one end of the curved optical waveguide; and further comprising another branching section of the optical waveguide optically connected with the other end of said curved optical waveguide.

18. – 21. (Cancelled).

22. (Currently amended) An optical waveguide comprising:

the curved optical waveguide according to claim 4~~2~~; and

an optical waveguide having a different core shape optically connecting with each other.

23. (Original) An optical waveguide according to claim 22, wherein the optical waveguide having the different core shape is a branching section of the optical waveguide.

24. and 25. (Cancelled).

26. (Currently amended) An optical waveguide comprising:

the curved optical waveguide according to claim 4~~2~~; and

an optical fiber ~~disposed by being~~ optically connected with an end of the curved optical waveguide on a z = 1 side~~whose curvature gradually approaches zero~~.

27. (Currently amended) An optical waveguide comprising:

the curved optical waveguide according to claim 492; and

a guide groove structure for fixing an optical fiber to an end of the curved optical waveguide on a z = 1 sidewhose curvature gradually approaches zero, wherein the guide groove structure isbeing disposed to be adjacent to each otherthe curved optical waveguide.

28. (Currently amended) An optical waveguide comprising:

the curved optical waveguide according to claim 492; and

a reflecting surface including a filter atdisposed to be adjacent to an end of the curved optical waveguide on a z = 0 side disposed adjacent to each otherhaving a finite radius of curvature.

29. (Currently amended) An optical waveguide according to claim 1any one of claims 1 to 28, wherein at least one of the core or the clad of the optical waveguide is partially or entirely composed of a polymer.

30. (Original) An optical waveguide according to claim 29, wherein the polymer comprises a polyimide-based resin containing fluorine.

31. (Currently amended) An optical device comprising the optical waveguide according to claim 1any one of claims 1 to 30.

32. (New) An optical waveguide according to claim 7, wherein the optical waveguide having the different core shape is a branching section of the optical waveguide.

33. (New) An optical waveguide according to claim 32, wherein an inlet of said branching section of the optical waveguide is optically connected with one end of said curved optical waveguide.

34. (New) An optical waveguide according to claim 6, wherein said optical waveguide having the different core shape comprises a clad and a core whose shape is defined by any one of the following equations [IV], [V], [VI], and [VII]:

$$\mathbf{y} = 1 - \cos[(\pi/2)\mathbf{z}] \cdots\cdots\cdots\cdots\cdots\cdots [IV]$$

wherein **y** and **z** represent coordinate axes perpendicular to each other on a plane where the optical waveguide is present;

$$\mathbf{y} = (1 - \mathbf{t})f(\mathbf{z}) + \mathbf{t}\{1 - \cos[(\pi/2)\mathbf{z}]\} \cdots\cdots\cdots\cdots\cdots\cdots [V]$$

wherein **y** and **z** represent coordinate axes perpendicular to each other on a plane where the optical waveguide is present, f(**z**) represents a continuous function of **z** which satisfies relationships of f(0) = 0, f(1) = 1, f"(0) = 0, and f"(1) = 0 where f"(**z**) represents a second differential function of f(**z**) with respect to **z**, and **t** represents a real number except zero;

$$\mathbf{y} = (1 - \mathbf{t})\mathbf{z} + \mathbf{t}\{1 - \cos[(\pi/2)\mathbf{z}]\} \cdots\cdots\cdots\cdots\cdots\cdots [VI]$$

wherein **y** and **z** represent coordinate axes perpendicular to each other on a plane where the optical waveguide is present, and **t** represents a real number except zero;

$$\mathbf{y} = (1 - t)[\mathbf{z} - (\mathbf{a}/\pi)\sin\pi\mathbf{z}] + \mathbf{t}[1 - \cos[(\pi/2)\mathbf{z}]] \cdots\cdots\cdots\cdots [VII]$$

wherein **y** and **z** represent coordinate axes perpendicular to each other on a plane where the optical waveguide is present, and **t** and **a** each represent a real number except zero.

35. (New) An optical waveguide according to claim 7, wherein said optical waveguide having the different core shape comprises a clad and a core whose shape is defined by any one of the following equations [IV], [V], [VI], and [VII]:

$$y = 1 - \cos[(\pi/2)z] \quad \cdots\cdots\cdots\cdots [IV]$$

wherein **y** and **z** represent coordinate axes perpendicular to each other on a plane where the optical waveguide is present;

$$y = (1 - t)f(z) + t\{1 - \cos[(\pi/2)z]\} \quad \cdots\cdots\cdots\cdots [V]$$

wherein **y** and **z** represent coordinate axes perpendicular to each other on a plane where the optical waveguide is present, f(**z**) represents a continuous function of **z** which satisfies relationships of f(0) = 0, f(1) = 1, f"(0) = 0, and f"(1) = 0 where f"(**z**) represents a second differential function of f(**z**) with respect to **z**, and **t** represents a real number except zero;

$$y = (1 - t)z + t\{1 - \cos[(\pi/2)z]\} \quad \cdots\cdots\cdots\cdots\cdots [VI]$$

wherein **y** and **z** represent coordinate axes perpendicular to each other on a plane where the optical waveguide is present, and **t** represents a real number except zero;

$$y = (1 - t)[z - (a/\pi) \sin \pi z] + t\,[1 - \cos[(\pi/2)z]] \quad \cdots\cdots\cdots [VII]$$

wherein **y** and **z** represent coordinate axes perpendicular to each other on a plane where the optical waveguide is present, and **t** and **a** each represent a real number except zero.

36. (New) An optical waveguide according to claim 34, wherein the optical waveguide having the different core shape is a branching section of the optical waveguide.

37. (New) An optical waveguide according to claim 36, wherein an inlet of said branching section of the optical waveguide is optically connected with one end of said curved optical waveguide.

38. (New) An optical waveguide according to claim 36, wherein

an inlet of said branching section of the optical waveguide is optically connected with one end of the curved optical waveguide; and further comprising another branching section of the optical waveguide optically connected with the other end of said curved optical waveguide.

39. (New) A curved optical waveguide comprising:

a core; and

a clad,

wherein a core shape of the curved optical waveguide is defined by the following equation [II]:

$$\mathbf{y} = \mathbf{z} - [(1/\pi) \sin \pi \mathbf{z}] \cdots\cdots [II]$$

wherein **y** and **z** represent coordinate axes perpendicular to each other on a plane where the optical waveguide is present.

40. (New) An optical waveguide comprising:

the curved optical waveguide according to claim 39; and

an optical waveguide having a different core shape optically connecting with each other.

41. (New) An optical waveguide comprising:

the curved optical waveguide according to claim 39; and

an optical waveguide having a different core shape optically connecting with each other in a manner that their geometrical central axes are aligned with each other.

42. (New) An optical waveguide comprising:

the curved optical waveguide according to claim 39; and

an optical fiber optically connected with an end of said curved optical waveguide.

43. (New) An optical waveguide comprising:

the curved optical waveguide according to claim 39; and

a guide groove structure for fixing an optical fiber to an end of said curved optical waveguide disposing adjacent with each other.

44. (New) A curved optical waveguide comprising:

a core; and

a clad,

wherein a core shape is defined by the following equation [III]:

$$y = z - [(a/\pi) \sin \pi z] \cdots\cdots[III]$$

wherein **y** and **z** represent coordinate axes perpendicular to each other on a plane where the optical waveguide is present, and **a** represents a real number except zero.

45. (New) An optical waveguide comprising:

the curved optical waveguide according to claim 44; and

an optical waveguide having a different core shape optically connecting with each other.

46. (New) An optical waveguide comprising:

the curved optical waveguide according to claim 44; and

an optical waveguide having a different core shape optically connecting with each other in a manner that their geometrical central axes are aligned with each other.

47. (New) An optical waveguide comprising:

the curved optical waveguide according to claim 44; and

an optical fiber optically connected with an end of said curved optical waveguide.

48. (New) An optical waveguide comprising:

the curved optical waveguide according to claim 44; and

a guide groove structure for fixing an optical fiber to an end of said curved optical waveguide disposing adjacent with each other.

49. (New) A curved optical waveguide comprising:

a core; and

a clad,

wherein a core shape of the curved optical waveguide is defined by the following equation [IV]:

$$\mathbf{y} = 1 - \cos[(\pi/2)\mathbf{z}] \cdots\cdots\cdots\cdots [IV]$$

wherein **y** and **z** represent coordinate axes perpendicular to each other on a plane where the optical waveguide is present.

50. (New) A curved optical waveguide comprising:

a core; and

a clad,

wherein a core shape of the curved optical waveguide is defined by the following equation [V]:

$$\mathbf{y} = (1 - \mathbf{t})f(\mathbf{z}) + \mathbf{t}\{1 - \cos[(\pi/2)\mathbf{z}]\} \cdots\cdots\cdots\cdots [V]$$

wherein **y** and **z** represent coordinate axes perpendicular to each other on a plane where the optical waveguide is present, f(**z**) represents a continuous function of **z** which satisfies relationships of f(0) = 0, f(1) = 1, f"(0) = 0, and f"(1) = 0 where f"(**z**) represents a second differential function of f(**z**) with respect to **z**, and **t** represents a real number except zero.

51. (New) An optical waveguide comprising:

the curved optical waveguide according to claim 50; and

an optical waveguide having a different core shape optically connecting with each other.

52. (New) An optical waveguide comprising:

the curved optical waveguide according to claim 50; and

an optical fiber optically connected with an end of the curved optical waveguide on a z = 1 side.

53. (New) An optical waveguide comprising:

the curved optical waveguide according to claim 50; and

a guide groove structure for fixing an optical fiber to an end of the curved optical waveguide on a z = 1 side, wherein the guide groove structure is disposed adjacent to each other.

54. (New) An optical waveguide comprising:

the curved optical waveguide according to claim 50; and

a reflecting surface including a filter at an end of the curved optical waveguide on a z = 0 side disposed adjacent to each other.

55. (New) A curved optical waveguide comprising:

a core; and

a clad,

wherein a core shape of the curved optical waveguide is defined by the following equation [VI]:

$$\mathbf{y} = (1 - \mathbf{t})\mathbf{z} + \mathbf{t}\{1 - \cos[(\pi/2)\mathbf{z}]\} \cdots\cdots\cdots\cdots\cdots\cdots [VI]$$

wherein **y** and **z** represent coordinate axes perpendicular to each other on a plane where the optical waveguide is present, and **t** represents a real number except zero.

56. (New) An optical waveguide comprising:

the curved optical waveguide according to claim 55; and

an optical waveguide having a different core shape optically connecting with each other.

57. (New) An optical waveguide comprising:

the curved optical waveguide according to claim 55; and

an optical fiber optically connected with an end of the curved optical waveguide on a z = 1 side.

58. (New) An optical waveguide comprising:

the curved optical waveguide according to claim 55; and

a guide groove structure for fixing an optical fiber to an end of the curved optical waveguide on a z = 1 side, wherein the guide groove structure is disposed adjacent to each other.

59. (New) An optical waveguide comprising:

the curved optical waveguide according to claim 55; and

a reflecting surface including a filter at an end of the curved optical waveguide on a z = 0 side disposed adjacent to each other.

60. (New) A curved optical waveguide comprising:

a core; and

a clad,

wherein a core shape of the curved optical waveguide is defined by the following equation [VII]:

$$y = (1 - t)[z - (a/\pi)\sin \pi z] + t\{1 - \cos[(\pi/2)z]\} \cdots\cdots\cdots [VII]$$

wherein **y** and **z** represent coordinate axes perpendicular to each other on a plane where the optical waveguide is present, and **t** and **a** each represent a real number except zero.

61. (New) An optical waveguide comprising:

the curved optical waveguide according to claim 60; and

an optical waveguide having a different core shape optically connecting with each other.

62. (New) An optical waveguide comprising:

the curved optical waveguide according to claim 60; and

an optical fiber optically connected with an end of the curved optical waveguide on a z = 1 side.

63. (New) An optical waveguide comprising:

the curved optical waveguide according to claim 60; and

a guide groove structure for fixing an optical fiber to an end of the curved optical waveguide on a z = 1 side, wherein the guide groove structure is disposed adjacent to each other.

64. (New) An optical waveguide comprising:

the curved optical waveguide according to claim 60; and

a reflecting surface including a filter at an end of the curved optical waveguide on a z = 0 side disposed adjacent to each other.

65. (New) An optical waveguide according to claim 23, wherein an outlet of said branching section of the optical waveguide is optically connected with an end of said curved optical waveguide on a **Z** = 0 side.

66. (New) An optical waveguide according to claim 23, wherein an inlet of said branching section of the optical waveguide is optically connected with an end of said curved optical waveguide on a **Z** = 1 side.